

Canada. Fisheries dept.
Industrial development service
[General publications]
[G-1] Fisheries industrial
development

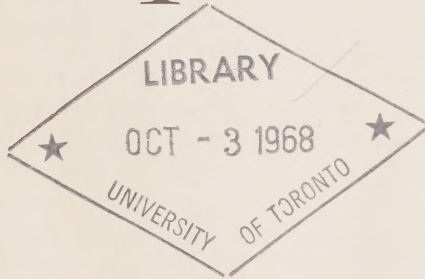
CA1 FS 15
-68F33

Canada, Fisheries Dept.
Industrial Development Service
[Annual
Publications]

Government
Publications



Fisheries Industrial Development



The Industrial Development Service of the Department of Fisheries of Canada plans to improve Canada's fisheries by exploration, by advanced technology and by diversification of the industry.

Proper management techniques will ensure that fish stocks will survive and expand.

Fish are a renewable resource. But their continuance depends on man.

©

ROGER DUHAMEL, F.R.S.C.
Queen's Printer and Controller of Stationery
Ottawa, 1968

Fisheries Industrial Development

The function of the Industrial Development Service of the Department of Fisheries of Canada is to help speed the expansion and diversification of the country's fisheries. This calls for the application of improved technology at all steps in the progress of the fish from its native habitat to the retail shelves, counters and freezers.

Development projects carried out either independently by the Service or in co-operation with provincial fisheries authorities and the fishing industry are largely aimed at the primary industry. These projects, in the Atlantic Coast Provinces, British Columbia and Central Canada, are numbered in the hundreds. Many of them are designed to discover and assess the potential of unexploited or under-exploited stocks of fish and other resources such as marine plants.

An intensive technical assistance program, directed by the Industrial Development Service's staff of vessel and gear technologists, naval architects, engineers and other specialists, employs highly skilled instructors, on short term contracts, recruited from Canada and other leading fishing nations of the world. The services of these experts are made freely available to fishermen and the fishing industry generally on a broad basis, both at sea and at shore installations.

The Service also provides the secretariat for Canadian industrial development conferences which allow a useful exchange of views on various phases of the fishing industry as well as the recording of a wealth of information. Since early 1966 three such conferences, sponsored by the Federal-Provincial Atlantic Fisheries Committee, have been held. They dealt with offshore fishing vessels, the Atlantic herring fishery, and fish protein concentrate. Two others are planned, one on fishing vessel construction materials and the other on automation and mechanization in the fishing industry.

The two projects dealt with in some detail in this brochure – the midwater trawl for herring and the burgeoning queen crab fishery at the Atlantic coast – are examples of the results being achieved in the over-all fisheries development program.

The Queen Crab Fishery

The story of the development of a Queen crab fishery on the Atlantic coast of Canada is one of turning a nuisance into a benefit.

Long the bane of fishermen because of its proclivity for getting entangled in their nets, the spider crab (*Chionoecetes opilio*), has gained not only new status but a new name. As the Queen crab, it has become a gourmet item and a new source of income for Canadian Atlantic fishermen and shore workers.

In two years the Queen crab fishery, to date centred mainly in the Gulf of St. Lawrence and the southeast coast of Newfoundland, has grown from nothing to a 1967 annual production of more than one and one-half million pounds. That meant added income to fishermen who used to hate the sight of the animal.

The Queen crab is found from West Greenland to the State of Maine in varying quantities. The Industrial Development Service of the federal Department of Fisheries, working jointly with the provincial authorities of New Brunswick, Nova Scotia, Prince Edward Island, Quebec and Newfoundland, began exploratory fishing in



Queen crab – a tasty long-legged crustacean.



Experimental processing of Queen crab.

various areas in 1965, not only to locate stocks which could be profitably fished, but to determine the best fishing method.

Several well stocked areas were found in the Gulf of St. Lawrence and in the bays of southeastern Newfoundland. The most widely used catching gear is the box trap, 6' x 6' x 30'', which has two tunnels and weighs about 300 pounds. Experimental work is being continued in an effort to devise an even more efficient trap.

One aspect of the crab fishery that will aid in its expansion is that almost any type of vessel can be used. To date vessels employed in this fishery have ranged in size from a 40-foot herring gillnetter, using 25 traps, to a 110-foot dragger fishing 65 traps. The machinery for hauling the traps is also varied. A dragging winch, a Danish seine winch and a Puretic power block have all been used successfully.

Plants for processing Queen crabs have been established in Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland, and are now producing crab meat on a commercial scale.

The Midwater Trawl

Midwater trawling is an extremely efficient fishing operation, in which improved net design and sophisticated electronic equipment have proved to be a highly successful combination.

In the latter part of 1967 midwater trawling off Canada's east coast provided a striking demonstration of the effectiveness of the technique.

This was an experimental project, carried out jointly by the Governments of Canada and Nova Scotia, which chartered and converted a 102-foot scallop dragger, the "Lady Anna", for a four-month trial period. In addition to the outstanding success achieved by this vessel in catching large quantities of herring, there was a spectacular catch, in a single tow, of 121,000 pounds of pollock. This was one of four drags which loaded the vessel with over 200,000 pounds of fish, the length of the drags varying from 20 minutes to two hours. The same boat took catches of as much as 30 tons of herring in a single haul, almost as a matter of routine.

The project was designed to prove the feasibility of midwater trawling for herring—the huge catches of pollock were a surprise bonus.

Large quantities of herring have normally been taken by purse seiners operating over huge schools of fish, but never before had such catches been made by a Canadian trawler. What is more, most of the midwater trawl's catches were made in the daytime, when the herring are usually too deep and too dispersed for successful purse seining operations. The trials were conducted over what could be considered poor showings of fish, as identified by echo sounding, in comparison with the dense quantities required for good fishing by purse seiners.

Midwater trawling uses a huge conical net, closed at the small end, or codend, and held open by shearing devices called otter doors at the mouth. It is dragged along the sea bottom to scoop up ground-fish. The midwater trawl can be "aimed" at schools of pelagic fish and high swimming demersal fish swimming at varying depths.

The reason for the midwater trawl gear's effectiveness lies in the design of the trawl and the electronic equipment which is con-

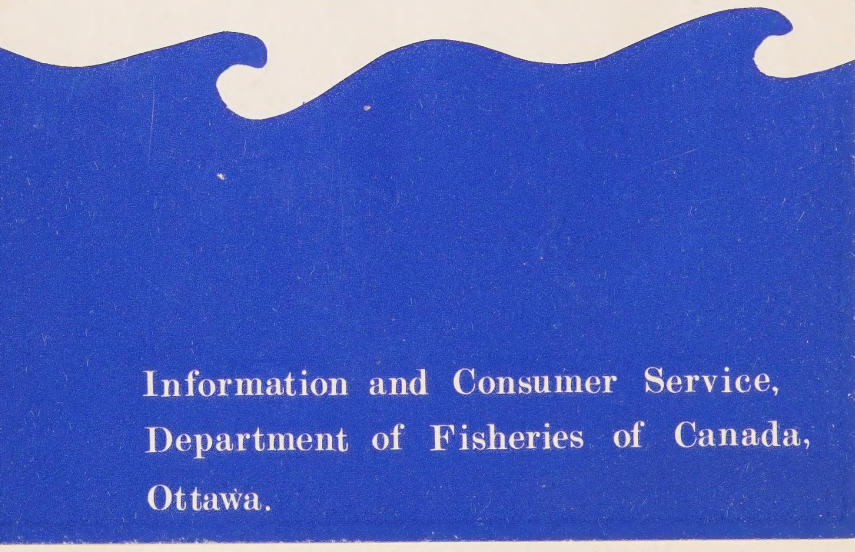
nected with it. These make it possible for the skipper to manipulate the net at any required depth. The fish are first located by echo sounding, and then a device known as a "net sounder", attached to the headline of the trawl, allows the skipper to manouver the gear quickly in to the most effective "attack" attitude, and provides him with a view of the trawl in action. The data from the net sounder shows, on a recorder graph in the wheelhouse, exactly what can be seen from the headline.

Another attribute of the electronic gear is that the skipper can see on the vessel's echosounder when to increase towing speed to allow the net to clear peaks or obstructions rising from the sea bottom and the net-sounder shows the actual clearance when the net passes above the obstacle.

The success of the "Lady Anna", has created a great deal of interest in the Canadian Atlantic herring fishery and there seems to be little doubt that the midwater trawl will be widely used in the future.



One of the spectacular catches of herring and pollock made by the experimental mid-water trawler "Lady Anna".



Information and Consumer Service,
Department of Fisheries of Canada,
Ottawa.

